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A battery-powered tyre pressure sensor, comprising:

a pressure transducer for sensing a pressure of a tyre and providing a tyre pressure signal:

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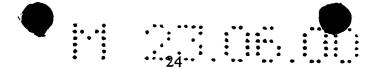
a signal processor connected to the pressure transducer for providing a signal dependent on the tyre pressure signal to the transmitter:

a timing circuit connected to the signal processor which is configured to automatically switch the tyre pressure sensor on periodically for a predetermined interval to measure the tyre pressure and switch off the tyre pressure sensor at all other times to conserve battery power, in which the timing circuit comprises a timer and a switch, the timer being configured to periodically actuate the switch and thereby connect the pressure sensor to the battery to turn the tyre pressure sensor on for said predetermined interval.

- 2. A battery-powered tyre pressure sensor according to claim 1. further comprising a non-volatile memory device for storing an identification code used to identify transmissions from the pressure sensor.
- 3. A battery-powered tyre pressure sensor according to claim 2. in which the non-volatile memory device also stores calibration information which is used to determine the tyre pressure.
  - 4. A battery-powered tyre pressure sensor according to any preceding claim, further comprising a temperature transducer connected to the signal processor to provide a

temperature signal to the signal processor, wherein the signal processor is adapted to apply a temperature compensation to the tyre pressure signal in dependence on the temperature signal.

- 5 5. A battery-powered tyre pressure sensor according to any preceding claim, in which the signal processor is a microcontroller having an embedded computer program for controlling the operation of the pressure sensor.
- 6. A battery-powered tyre pressure sensor according to claim 5, in which the microcontroller is configured to record battery voltage and operating temperature each time it makes a pressure measurement and, when necessary, encode this information together with the pressure sensor identification code for transmission via the transmitter.
- 7. A battery-powered tyre pressure sensor according to any preceding claim. in which
  the transmitter comprises a surface acoustic wave (SAW) resonator.
  - 8. A battery-powered tyre pressure sensor according to any preceding claim, configured so that it does not make any transmissions until it is connected to an inflated tyre.
- 20 9. A battery-powered tyre pressure sensor according to any preceding claim, adapted to be screwed onto the valve stem of a vehicle tyre.
  - 10. A remote tyre pressure monitoring system for mounting on a vehicle, comprising a plurality of tyre pressure sensors according to any preceding claim in combination with a



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cab unit for mounting within the vehicle cab, the cab unit comprising:

- a receiver for detecting transmissions from the respective transmitters of the tyre pressure sensors; and,
- a display for providing a driver with information about the tyres on the vehicles in dependence on the received transmissions from the pressure sensors.
- 11. A transponder unit for use in a remote tyre pressure monitoring system for a vehicle which includes a plurality of remote tyre pressure sensors connected to respective tyres, wherein each pressure sensor is adapted to transmit a signal with information about the condition of its respective tyre, the transponder unit comprising:

  a receiver for receiving the transmitted signals from the individual pressure sensors;

  a signal processor for processing signals from the pressure sensors and generating a coded signal for transmission which identifies the transponder unit and tyre location; and,

  a transmitter for transmitting the coded signal to a remote receiver where information can be displayed to a driver about the tyres associated with the transponder unit.
- 12. A transponder unit according to claim 11, further comprising a memory to store a unique identification code to identify the transponder unit.

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- 13. A remote tyre pressure monitoring system comprising a transponder unit according to claim 11 or 12, in combination with a cab unit, the cab unit comprising:
- a receiver for receiving the coded signal from the transponder unit;
- a signal processor for detecting and decoding the coded signal; and,
- a display for providing the driver with information about the condition of the tyres associated with the transponder unit.

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A remote tyre pressure monitoring system according to claim 13, further comprising a vehicle trailer on which the transponder unit is mounted.

- 15. A remote type pressure monitoring system according to claim 13 or 14, in which the remote tyre pressure sensors are tyre pressure sensors according to any of claims 1 to 9.
- 16. A vehicle comprising a cab unit and a trailer unit connectable to the cab unit, comprising a remote tyre pressure monitoring system according to any of claims 13 to 15.
- 17. A vehicle according to claim 16, in which the transponder unit is responsive to transmit an identification signal to the remote receiver when power is first supplied to the transponder unit.
- 18. A vehicle according to claim 17 in which power is supplied to the transponder unit by activation of the vehicle brake light line.

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19. A vehicle according to any of claims 16 to 18, wherein the receiver of the transponder unit has a processor programmed to recognise transmissions from sensors connected to wheels of the trailer and ignore all others.

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